



SF₆ Reductions in Non-Semiconductor and Non-Electric Utility Applications: Draft Regulatory Language

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Purpose

- To reduce sulfur hexafluoride emissions in California
 - Over 23,000 times more potent a GHG than carbon dioxide
 - Increasing concentrations
 - Long lifetime

Coverage and Applicability

- Any person who uses, buys, sells , or manufacturers SF₆ in CA
 - Semiconductor and Electric Utility or related devices NOT covered under use or sales restrictions
- However, Recordkeeping on all sales – no matter the use.

Restrictions

- No purchase, use, sales, or distribution of SF₆
- No sales of products containing SF₆
- No venting of SF₆
- No possession of SF₆ after a year of start date
- Except as provided by exclusions or conditional exemptions

Phase Out Schedule

Applications	Start Dates
All applications except those listed below	January 1, 2010
Magnesium Sand Casting	January 1, 2013
Magnesium Investment Casting	January 1, 2013

Exclusions

- Two reasons for exclusions:
 - Covered by either the semiconductor or electric utility regulations,
 - CVD cleaning
 - Etching
 - Dielectric
 - Arc quenching
 - Known to fall under one of the conditional exemptions
 - Will discuss in more detail later

Conditional Exemptions

- Greenhouse Gas Lifecycle
 - Use of SF₆ will reduce greenhouse gas emissions over the lifetime of the equipment or process on a carbon dioxide equivalent basis.
 - Must also provide equivalent or greater protection to public health
- Exclusion 5 satisfies this exemption - Compliance with Cal/OSHA regulation

Conditional Exemptions (continued)

- **Essential uses with no alternatives**
 - No viable alternative in the specified use
 - For example:
 - Alternative does not serve the same function under appropriate operating conditions
 - Alternatives not allowed by other regulatory agencies for health or air quality concerns
 - SF₆ needed for research and no alternatives can serve the same purpose
 - Must provide a mitigation plan
- **Exclusions 6-9 satisfy this exemption**
 - Medical Applications
 - Testing of nuclear power plant control room emergency ventilation systems
 - Equipment calibration (as defined)

Conditional Exemptions (continued)

- **Economic Hardship:**
 - Compliance would result in extraordinary economic hardship
 - Examples:
 - Closure of operation or large portion of operation
 - Loss of large portion of revenue to businesses outside of California
 - It is beyond the reasonable control of the applicant
 - Public Interest in mitigating hardship outweighs public interest in avoiding GHG emissions increases
 - Provide determination of if and when compliance can be achieved
 - Provide a mitigation plan
- This exemption is provisional and may not be included in the final regulation. Comments welcome.

Conditional Exemptions (continued)

- Public process
- Applicant can be one operation/business or a group
- If approved, the exemptions can be broadened to all users by EO
- Can be one-time, short-term or long term

Notice to Purchasers

- Distributors must provide purchasers of SF₆ with accurate copies of the final regulation
- Must provide ARB with documentation of mailed notifications
- Distributors will be provided a final copy of the regulation within 60 days of registering with the Executive Officer
- This could be replaced by labeling on container – feedback welcome.

Registration, Recordkeeping and Reporting

- Purchasers: Must provide distributors with a letter stating the use is allowed either by an exclusion or conditional exemption
- Distributors:
 - Must register by January 30, 2010 or within 30 days of conducting business in CA
 - Must retain invoices for 3 years and provide annual reports
 - Annual reports include transaction of sales to each user with quantities of SF₆ sold for each transaction
 - May fold in reporting of regulatory notice to purchasers
 - Register and report to ARB

Comments and Suggestions

- Please review exact language and definitions
- Comments due by October 15th

Draft Economic Information

- Magnesium:
 - Assumptions
 - An average capital investment of \$50,000
 - No annual costs
 - Lifetime of 20 years
 - Potential alternative annual cost of \$25000 for training and recertification
 - Initial calculations suggest the change on return on equity is <1%
- Tracer:
 - Assumptions:
 - An average capital investment of \$50,000 (new equipment or recalibration)
 - Lifetime of 20 years
 - Average cost differential between SF₆ and new gas: \$168/kg
 - Initial calculations suggest the change on return on equity is < 10%
- Not considered significant impact
- Economic analysis suggests that economic hardship exemption may be unnecessary

Next Steps

- Staff Analysis will be available in November
- Board Meeting in January
- If approved by the Board, OAL has 1 year to approve

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